

Application Number 10/813,495
Responsive to Office Action mailed March 23, 2006

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REMARKS

This amendment is responsive to the Office Action dated March 23, 2006. Applicants have amended claims 1-14, 19 and 20. Claims 1-20 are pending.

Claim Rejection Under 35 U.S.C. § 102

In the Office Action, the Examiner rejected claims 1-4, 6-15 and 17-20 under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Application No. 2005/0168869 to Dugas et al. ("Dugas '869"). Applicants respectfully traverse the rejection to the extent such rejection may be considered applicable to the amended claims. Dugas '869 fails to disclose each and every feature of the claimed invention, as required by 35 U.S.C. 102(e), and provides no teaching that would have suggested the desirability of modification to include such features.

Applicants have amended independent claims 1 and 14 to further clarify that the first write gap and the second write gaps are mechanically aligned in the servo channel. Claim 1 now recites a system including a servo writing apparatus with a first servo head and a second servo head, and an alignment tool that translates and rotates the first and second servo write heads to substantially align a first write gap of the first servo head and second write gaps of the second servo head in the servo channel to within less than 10 micrometers. Applicants have amended dependent claims 2-11 to properly recite the system of amended independent claim 1. Applicants do not acquiesce in the rejections raised by the Examiner against original claims 1-11, and reserve the right to pursue the original claims and traverse the rejections in the future.

Claim 14 now recites that the first write gap of the first servo write head and the second write gaps of the second servo write head are substantially aligned in the servo channel to within less than 10 micrometers by translating and rotating the first and second servo write heads.

Applicants' specification includes support for these amendments. For example, claim 16 recites using an alignment tool to individually align the second write gaps and the first write gap. In addition, paragraph [0066] of Applicants' specification states "[s]ervo head holder positions the servo write heads by translating in at least one direction and rotating about at least one axis to modify the height and azimuth of the servo write heads." Applicants' specification further states that the servo head holder may translate the servo write heads about up to six axes.

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Additionally, Applicants have amended independent claim 12 and dependent claim 13 to further clarify that the servo writing apparatus comprises a single core that defines a first servo write head and a second servo write head. Applicants have also amended claims 19 and 20 to depend from independent claim 12, and recite that the first servo write head and the second servo write head within the single core comprise a surface thin film and the first write gap and the second write gaps are formed in the surface thin film using a single mask.

With respect to independent claim 1, the Examiner stated that Dugas '869 discloses a first servo write head comprising a first gap and a second servo write head comprising one or more second write gaps arranged to define a time-based servo pattern. The Examiner also stated that Dugas '869 describes that the first gap and the second gaps disclose a servo channel and the first and second gaps are aligned in the servo channel within 10 micrometers. However, Dugas '869 fails to teach or suggest an alignment tool that translates and rotates a first servo write head and a second servo write head to align a first write gap of the first servo write head and one or more second write gaps of the second servo write head in a servo channel to within less than 10 micrometers, as recited by Applicants' independent claim 1 as amended.

Dugas '869 describes two servo heads disposed side-by-side within a housing in which one servo head includes a pre-erase gap to perform the DC erase and another servo head includes gaps for an amplitude or time-based servo pattern for writing to the servo channel of the magnetic tape. In one embodiment, Dugas '869 describes that the housing may be formed of any appropriate material, including metal, and the housing is milled to position the heads to the housing. Dugas '869 makes no mention of an alignment tool or any other device to mechanically align the write gaps of the first and second servo heads in a servo channel to within 10 micrometers. Specifically, Dugas '869 does not describe an alignment tool capable of translating, rotating, or otherwise mechanically adjusting the positions of the first and second servo heads within the housing to align the gaps of the first and second servo heads within the servo channel.

In another embodiment, Dugas '869 describes that the housing comprises a compound substrate, in which substrates of the servo heads are joined together, and the gaps of the servo heads are lithographically printed on the compound substrate by a single mask. In that embodiment, Dugas '869 states that the patterns printed on the gaps have lithographic precision

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to the order of 0.1 microns or better. Dugas '869 further states "the compound substrate module may be used for more precise pattern combinations than a mechanically assembled dual module head pair." Dugas '869 teaches that the gaps of the first and second write heads are aligned by being lithographically printed. Clearly, Dugas '869 does not teach or suggest that the write gaps of the first and second servo heads are mechanically aligned in the servo channel to within 10 micrometers with an alignment tool that translates and rotates the first and second servo heads in the housing.

In the Office Action, the Examiner stated that Beck discloses an alignment tool comprising a microscope. The Examiner further stated that it would have been obvious to one of ordinary skill in the art to modify the invention disclosed by Dugas '869 with the teachings from Beck to enhance aligning precision. Beck teaches alignment of a write element of a tape head to a media that is transported across the tape head. In other words, Beck describes aligning a portion of a write head apparatus to magnetic tape or another type of media passing over the write head apparatus. Beck does not teach aligning a first write gap in a first servo head and second write gaps in a second servo head within a servo writing apparatus such that the write gaps are aligned within a defined servo channel of a magnetic tape.

In Col. 16, ln. 37-41, Beck states that if an element of the tape head has micron or submicron feature sizes, then it may be necessary to use an optical magnification device such as a microscope to align the element to edges of the media. However, Beck does not describe an alignment tool that translates and rotates first and second servo write heads to substantially align write gaps of the first and second servo heads. Furthermore, Beck fails to teach or suggest an alignment tool that aligns write gaps of first and second servo heads in a servo channel of magnetic tape to within less than 10 micrometers. Therefore, Applicants' amended independent claim 1 and amended claims 2-11 dependent therefrom are in condition for allowance.

With respect to independent claim 12, the Examiner stated that the limitations recited in Applicants' claim 12 are similar to those recited in claim 1, and applied the same rejection to claim 12 as to claim 1. Additionally, the Examiner asserted that a core is an inherent part of the indicative head. As discussed above, in one embodiment, Dugas '869 discloses mounting two servo heads in a housing. In another embodiment, Dugas '869 discloses mounting a compound substrate that includes substrates of two servo heads joined together in a housing. In either case,

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Dugas '869 teaches two separate servo heads being joined in a housing. Dugas '869 does not mention that the first and second servo heads are formed from a single core. Clearly, Dugas '869 fails to teach or suggest a single core that defines a first servo write head and a second servo write head, and aligning gaps of the first and second servo write heads in a servo channel to within 10 micrometers. Applicants' amended independent claim 12 and amended claims 13, 18 and 19 dependent therefrom are in condition for allowance.

With respect to independent claim 14, the Examiner stated that the method described in claim 14 corresponds to the apparatus limitations recited in claim 1, and applied the same rejection to claim 14 as to claim 1. However, Dugas '869 fails to teach or suggest aligning a first write gap of a first servo write head and one or more second write gaps of a second servo write head in a servo channel to within less than 10 micrometers by translating and rotating the first and second servo write heads, as recited by Applicants' independent claims 14 as amended.

As discussed above, Dugas '869 describes two servo heads disposed side-by-side within a housing in which one servo head includes a pre-erase gap to perform the DC erase and another servo head includes gaps for an amplitude or time-based servo pattern for writing to the servo channel of the magnetic tape. In one embodiment, Dugas '869 describes that the housing may be formed of any appropriate material, including metal, and the housing is milled to position the heads to the housing. Dugas '869 does not describe translating, rotating, or otherwise mechanically adjusting the positions of the first and second servo heads within the housing to align the gaps of the first and second servo heads within the servo channel.

In another embodiment, Dugas '869 describes that the housing comprises a compound substrate, in which substrates of the servo heads are joined together, and the gaps of the servo heads are lithographically printed on the compound substrate by a single mask. In that embodiment, Dugas '869 states that the patterns printed on the gaps have lithographic precision to the order of 0.1 microns or better. Dugas '869 further states "the compound substrate module may be used for more precise pattern combinations than a mechanically assembled dual module head pair." Dugas '869 teaches that the gaps of the first and second write heads are aligned by being lithographically printed. Clearly, Dugas '869 does not teach or suggest that the write gaps of the first and second servo heads are mechanically aligned in the servo channel to within 10 micrometers by translating and rotating the first and second servo heads in the housing.

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In a similar manner, Dugas '869 fails to teach or suggest the features of Applicants' dependent claims 15, 17 and 18. For example, claim 17 recites bonding the first servo write head and the second servo write head to each other once the first write gap and the second write gaps are aligned. In the Office Action, the Examiner stated that Dugas '869 discloses bonding the first and second write heads as claimed. The Examiner referenced paragraphs [0030] and [0034]-[0036] of Dugas '869 in support of the rejection. However, the cited passages merely recite a compound substrate including substrates of the first and second servo heads joined together. The passages then disclose lithographically printing the write gaps on the first and second servo heads. Dugas '869 describes lithographically printing the write gaps after the first and second servo head substrates are mounted in the housing. Clearly, Dugas '869 fails to teach or suggest aligning the first write gap and the second write gaps prior to bonding the first servo head and the second servo head.

As another example, claim 18 recites mounting the first servo write head and the second servo write head in a mounting structure once the first write gap and the second write gaps are aligned. In the Office Action, the Examiner stated that Dugas '869 discloses mounting of the first and second servo write heads as claimed and refers to paragraph [0028] of Dugas '869 in support of the rejection. In paragraph [0028], Dugas '869 merely discloses that the first and second servo heads are mounted in a housing. Dugas '869 makes no mention of mechanically aligning the write gaps of the first and second servo heads. Furthermore, Dugas '869 fails to teach or suggest mounting the first and second servo heads in the housing after aligning the write gaps of the first and second servo heads.

Applicants also do not admit or acquiesce in the legitimacy of the Dugas '869 reference as prior art against the claimed invention, and reserve the right to dispute the prior art status of the Dugas '869 reference in any future communication. In view of the differences between the invention defined by amended claims 1-4, 6-15 and 17-20 and the apparatus defined by Dugas '869, however, Applicants reserve further comment at this time.

In order to support an anticipation rejection under 35 U.S.C. 102(e), it is well established that a prior art reference must disclose each and every element of a claim. This well known rule

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of law is commonly referred to as the "all-elements rule."¹ If a prior art reference fails to disclose any element of a claim, then rejection under 35 U.S.C. 102(e) is improper.²

Dugas '869 fails to disclose each and every limitation set forth in claims 1-4, 6-15 and 17-20. For at least these reasons, the Examiner has failed to establish a *prima facie* case for anticipation of Applicants' claims 1-4, 6-15 and 17-20 under 35 U.S.C. 102(e). Withdrawal of this rejection is requested.

Claim Rejection Under 35 U.S.C. § 103

In the Office Action, the Examiner rejected claim 5 under 35 U.S.C. 103(a) as being unpatentable over Dugas '869 in view of U.S. Patent Application No. 2005/0157422 to Dugas et al. ("Dugas '422"). Applicants respectfully traverse the rejection. The applied references fail to disclose or suggest the inventions defined by Applicants' claims, and provide no teaching that would have suggested the desirability of modification to arrive at the claimed invention. The Examiner stated that Dugas '869 fails to specify that the width of a data track is less than 18 micrometers and the width of a servo band is less than 190 micrometers, as recited by Applicants' claim 5. However, the Examiner asserted that Dugas '422 teaches such features.

As described above, Dugas '869 fails to teach or suggest an alignment tool that translates and rotates a first servo head and a second servo head to align a first write gap of the first servo write head and one or more second write gaps of the second servo write head in a servo channel to within less than 10 micrometers, as recited by Applicants' amended independent claim 1 from which claim 5 depends. Dugas '422 includes no teaching capable of overcoming the deficiencies of Dugas '869.

In the Office Action, the Examiner rejected claim 16 under 35 U.S.C. 103(a) as being unpatentable over Dugas '869 in view of U.S. Patent No. 6,700,729 to Beck et al. ("Beck"). Applicants respectfully traverse the rejection. The applied references fail to disclose or suggest

¹ See *Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 231 USPQ 81 (CAFC 1986) ("it is axiomatic that for prior art to anticipate under 102 it has to meet every element of the claimed invention").

² *Id.* See also *Lewmar Marine, Inc. v. Bartlett, Inc.* 827 F.2d 744, 3 USPQ2d 1766 (CAFC 1987); *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (CAFC 1990); *C.R. Bard, Inc. v. MP Systems, Inc.*, 157 F.3d 1340, 48 USPQ2d 1225 (CAFC 1998); *Oney v. Ratliff*, 182 F.3d 893, 51 USPQ2d 1697 (CAFC 1999); *Apple Computer, Inc. v. Articulate Systems, Inc.*, 234 F.3d 14, 57 USPQ2d 1057 (CAFC 2000).

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the inventions defined by Applicants' claims, and provide no teaching that would have suggested the desirability of modification to arrive at the claimed invention.

Applicants' claim 16 recites using an alignment tool comprising a servo head holder and a microscope objective to individually align the second write gaps and the first write gap to the mount reference surface. The Examiner stated that Dugas '869 fails to disclose the alignment tool comprising a microscope as claimed, but Beck discloses the alignment tool comprising a microscope. The Examiner further stated that it would have been obvious to one of ordinary skill in the art to modify the invention disclosed by Dugas '869 with the teachings from Beck to enhance aligning precision.

Beck teaches alignment of a write element of a tape head to a media that is transported across the tape head. In other words, Beck describes aligning a portion of a write head apparatus to magnetic tape or another type of media passing over the write head apparatus. In Col. 16, ln. 37-41, Beck states that if an element of the tape head has micron or submicron feature sizes, then it may be necessary to use an optical magnification device such as a microscope to align the element to edges of the media. However, Beck does not describe aligning write gaps of a first servo head and a second servo head to a reference surface in a mounting structure. Furthermore, Beck makes no mention of an alignment tool that includes a servo head holder and a microscope objective to individually align write gaps of the first and second servo heads.

As described above, Dugas '869 fails to teach or suggest aligning a first write gap of a first servo write head and one or more second write gaps of a second servo write head in a servo channel to within less than 10 micrometers by translating and rotating the first and second servo write heads, as recited by Applicants' amended independent claim 14 from which claim 16 depends. Beck includes no teaching capable of overcoming the deficiencies of Dugas '869.

For at least these reasons, the Examiner has failed to establish a *prima facie* case for non-patentability of Applicants' claims 5 and 16 under 35 U.S.C. 103(a). Withdrawal of this rejection is requested.

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CONCLUSION

All claims in this application are in condition for allowance. Applicant respectfully requests reconsideration and prompt allowance of all pending claims. Please charge any additional fees or credit any overpayment to deposit account number 50-1778. The Examiner is invited to telephone the below-signed agent to discuss this application.

Date:

June 23, 2006

SHUMAKER & SIEFFERT, P.A.
8425 Seasons Parkway, Suite 105
St. Paul, Minnesota 55125
Telephone: 651.735.1100
Facsimile: 651.735.1102

By:



Name: Darcy L. Grunwald
Reg. No.: 56,902